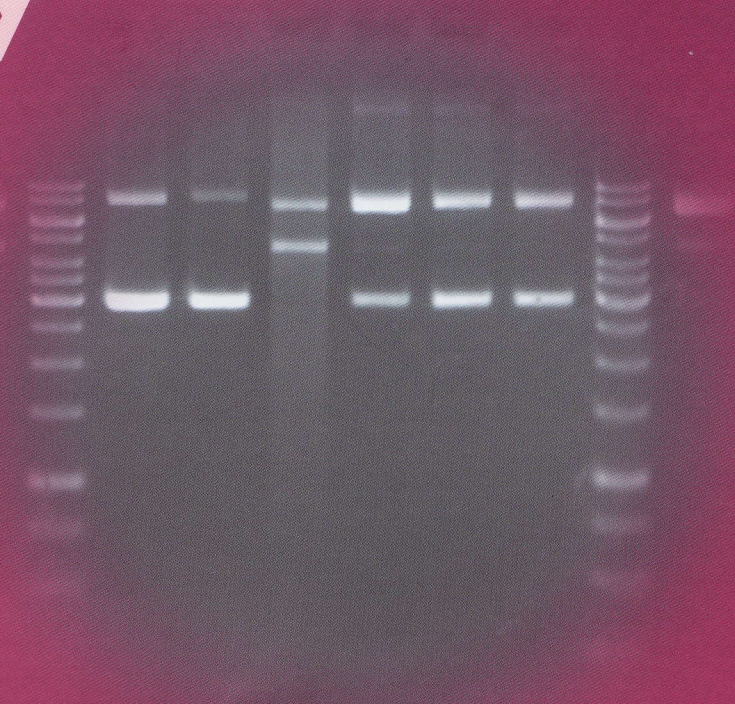
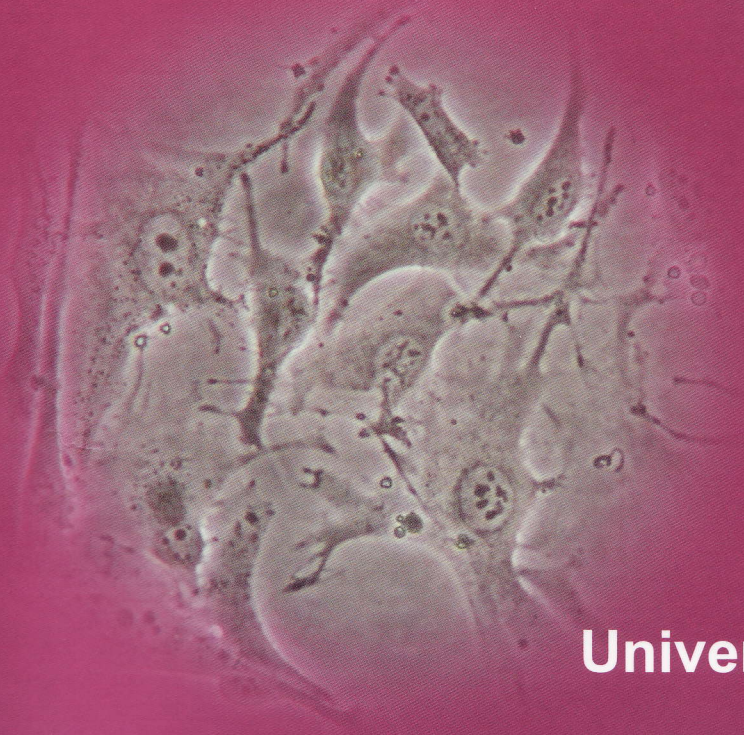
19th Intervarsity Biochemistry Seminar

2008



"Science Empowers Change"



22 March 2008

PB Block,
Petaling Jaya Campus
Universiti Tunku Abdul Rahman

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Persatuan Biokimia & Biologi Molekul Malaysia
Malaysian Society for Biochemistry & Molecular Biology

22/03/2008

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19th INTERVARSITY BIOCHEMISTRY SEMINAR

"SCIENCE EMPOWERS CHANGE"

22nd March 2008

Faculty of Engineering & Science,
Universiti Tunku Abdul Rahman

in collaboration with

The Malaysian Society for Biochemistry & Molecular Biology

Venue:
Universiti Tunku Abdul Rahman
Building PB, No. 13 Jalan 13/6
46200 Petaling Jaya, Selangor

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OSSICLE SHAPES AND MITOCHONDRIAL DNA PROFILES OF *Holothuria* AND *Stichopus* SPECIES

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Ossicles and mitochondrial DNA (mtDNA) of selected local sea cucumbers (Holothuroidea) were incorporated in this study in order to compare the ossicle shapes between the *Holothuria* and *Stichopus* species as well as to differentiate the mtDNA profiles between the two genera. Samples were collected from two main localities in Peninsular Malaysia namely Tioman Island, Pahang (Eastern region) and Pangkor Island, Perak (Western region). Species from genus *Stichopus* such as *S. horrens* (*golden gamat*) and *S. chloronotus* (*talifan varieti hitam*) used in this study are locally known as *gamat* and some have been proven scientifically containing medicinal properties, while *Holothuria* species such as *H. leucospilota* (*bat puntil*) and *H. atra* (*bat hitam*) were reported abundant in Malaysia. Species identification done by researches in Malaysia was mainly based on the morphological characteristics and the molecular systematic information of this echinoderm is still limited and unclear. Due to such reasons, mtDNA represented by cytochrome *b* (cyt-*b*) mtDNA gene and 16S ribosomal mtDNA gene was used in this study to update the species validity and relationship, as an alternative to morphological studies using the ossicles. Small portion of muscle tissue was digested using conventional methods in order to obtain the ossicles. DNA extraction by using kit, Polymerase Chain Reaction (PCR) and phylogenetic analyses were considered as the main molecular methods. The current results of ossicle shape identification could not differentiate the *Holothuria* from *Stichopus* species, at the species and genus level. Furthermore, the band position of the total genomic DNA extracts observed was above 10,000 base pair (bp). For Polymerase Chain Reaction (PCR), the annealing temperatures for cyt-*b* and 16S ribosomal mtDNA primers are still being optimized to date. It is believed that the findings from this study will provide insights that are relevant for identification efforts, morphologically and genetically.

KEYWORDS: *Stichopus*, *Holothuria*, ossicles, mtDNA, cytochrome *b*, 16S ribosomal mtDNA.